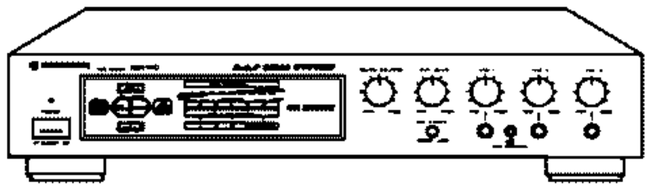
Service Manual

PIONEER®
The Art of Entertainment



ORDER NO.
TRT1121

MIC.MIXER
MA-990

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Type	Model	Power Requirement	Remarks
	MA-990		
NY	○	AC230V	

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PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153-8654, Japan
PIONEER ELECTRONICS SERVICE, INC. P.O. Box 1760, Long Beach, CA 90801-1760, U.S.A.
PIONEER ELECTRONIC (EUROPE) N.V. Haven 1087, Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS ASIACENTRE PTE. LTD. 501 Orchard Road, #10-00 Lane Crawford Place, Singapore 0923

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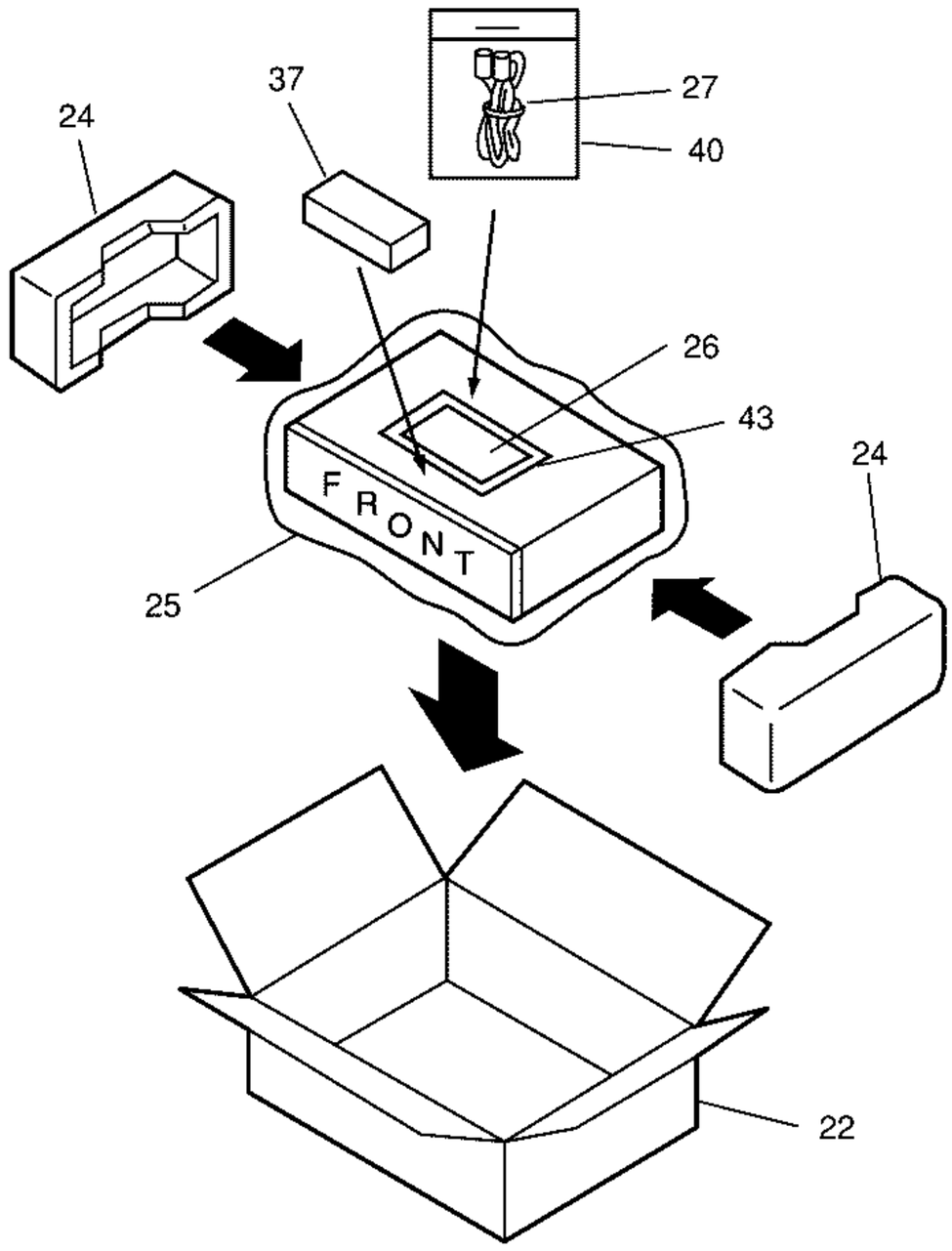
1. EXPLODED VIEWS AND PARTS LIST

NOTES: ● *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
● *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
● *Screws adjacent to ▼ mark on the product are used for disassembly.*

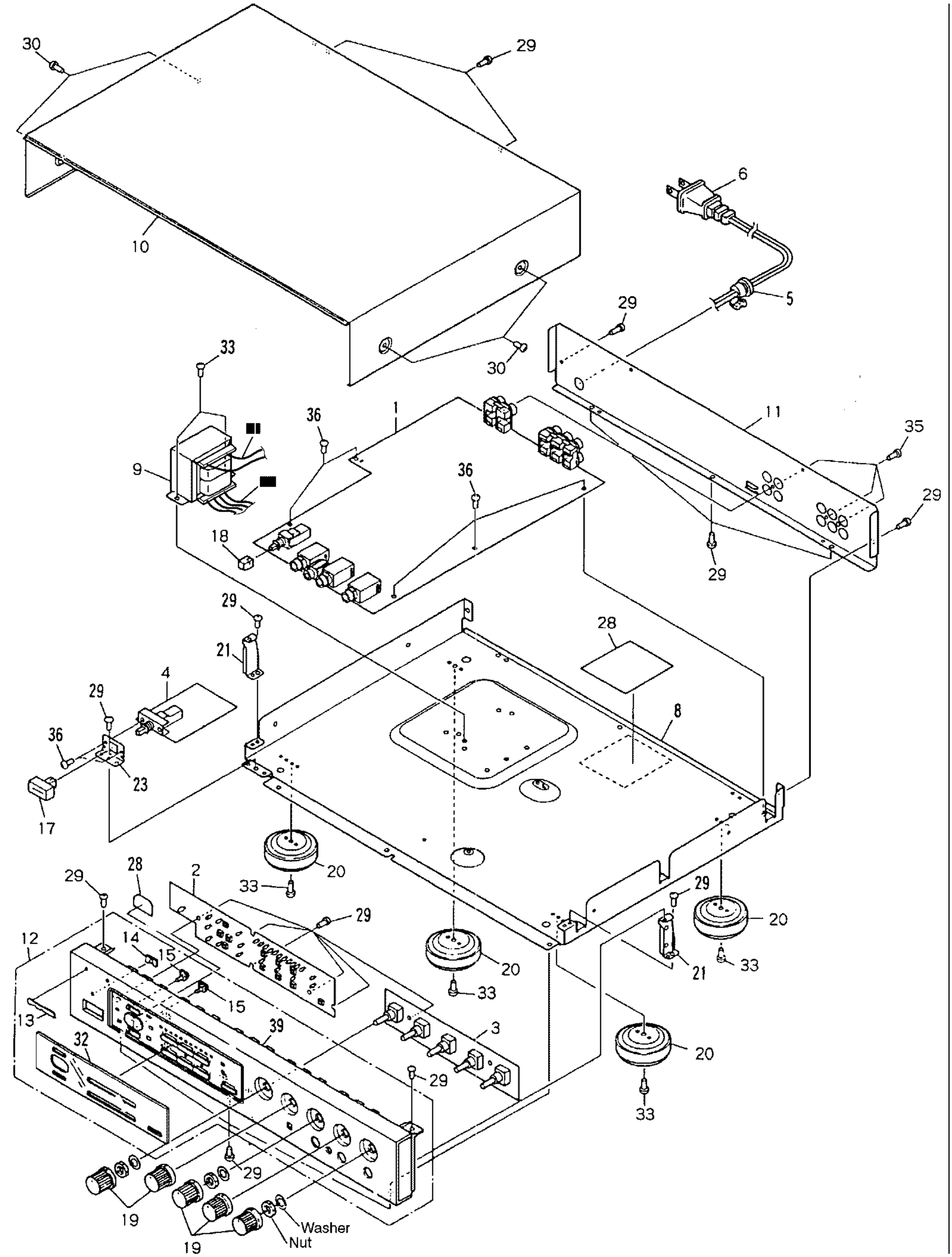
● PARTS LIST

Mark	No.	Description	Part No.
	1	MAIN BOARD Assy	MWX1079
	2	FRONT BOARD Assy	MWX1077
NSP	3	VOLUME BOARD Assy	MWX1078
NSP	4	POWER SWITCH BOARD Assy	MWX1076
	5	Cord Stopper	MNK1183
⚠	6	AC Power Cord	PDG1003
	7	• • • • •	
NSP	8	Chassis	MNA3012
⚠	9	Power Transformer	MTT1016
	10	Bonnet	MNA3013
	11	Rear Panel	MNA1114
	12	Panel Assy	MXA1043
	13	Name Plate	VAM1032
	14	Indicator B	RNK1385
	15	Lens	MNK3080
	16	• • • • •	
	17	Power Button	MNK3081
	18	Button	MNK3082
	19	Rotary Knob (A)	RAC1861
	20	Insulator Assy	AMR2140
NSP	21	Angle	MNA3016
	22	Packing Case	MHG1190
NSP	23	Power Holder	MNA3017
	24	Protector	MHA3012
	25	Sheet	MHL3013
	26	Operating Instructions (English/French/Spanish)	MRB1025
	27	Connection Cord (AUDIO)	MDE1050
	28	Cover	MNG3008
	29	Screw	BBZ30P060FZK
	30	Screw	BBZ40P060FZK
	31	• • • • •	
	32	Display Panel	MAH1015
	33	Screw	ATZ30P080FMC
	34	• • • • •	
	35	Screw	BBZ30P100FZK
	36	Screw	BBZ30P060FMC
	37	Pad	MHA3013
	38	• • • • •	
	39	Panel	MNK1196
	40	Poly Bag	PO230×340×0.05A
	41	Connector	MDF1024
	42	Connector	MDF1019
	43	Warranty Card	ARY7008

● PACKING



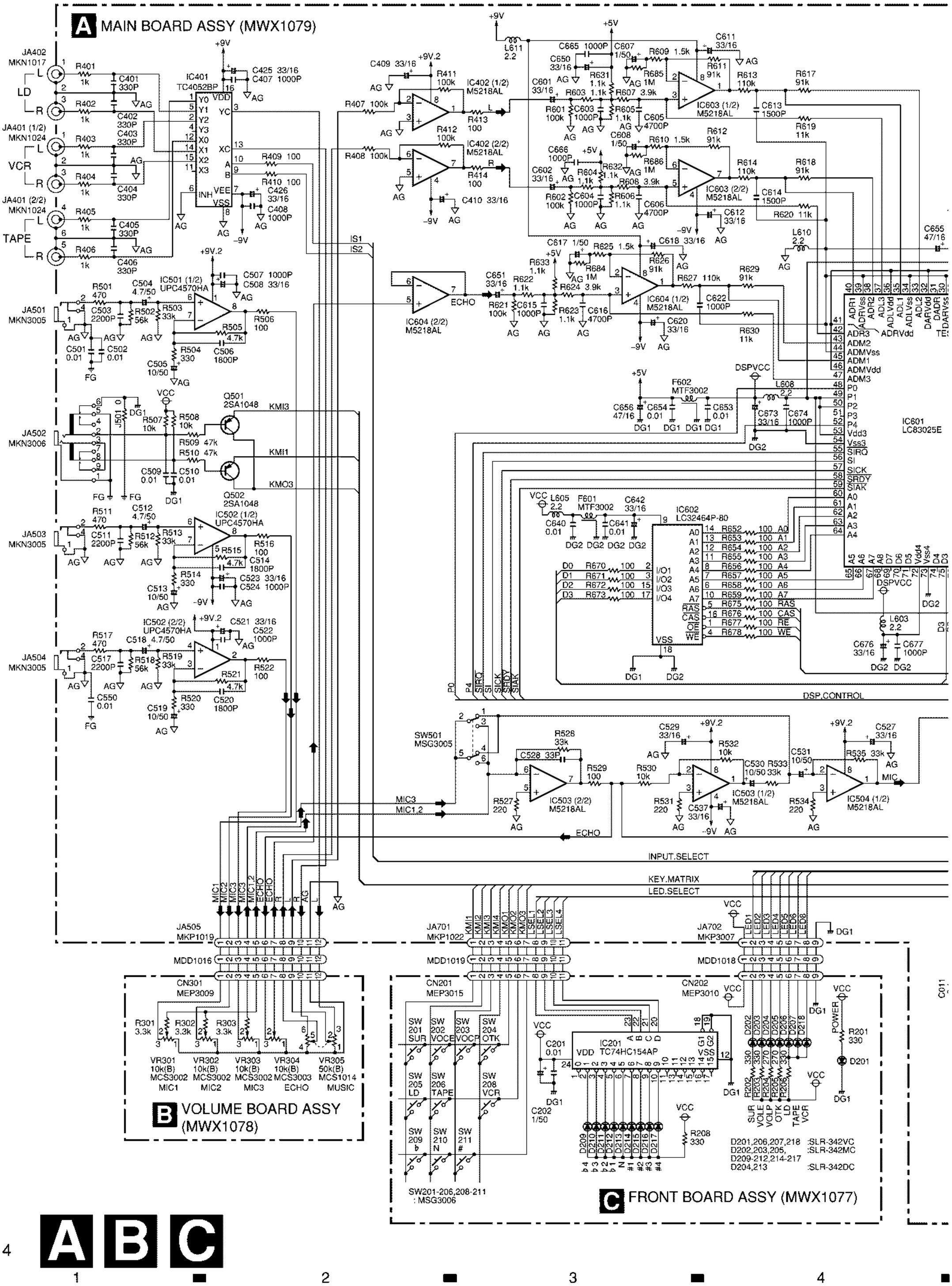
● EXPLODED VIEW



3.SCHEMATIC DIAGRAM

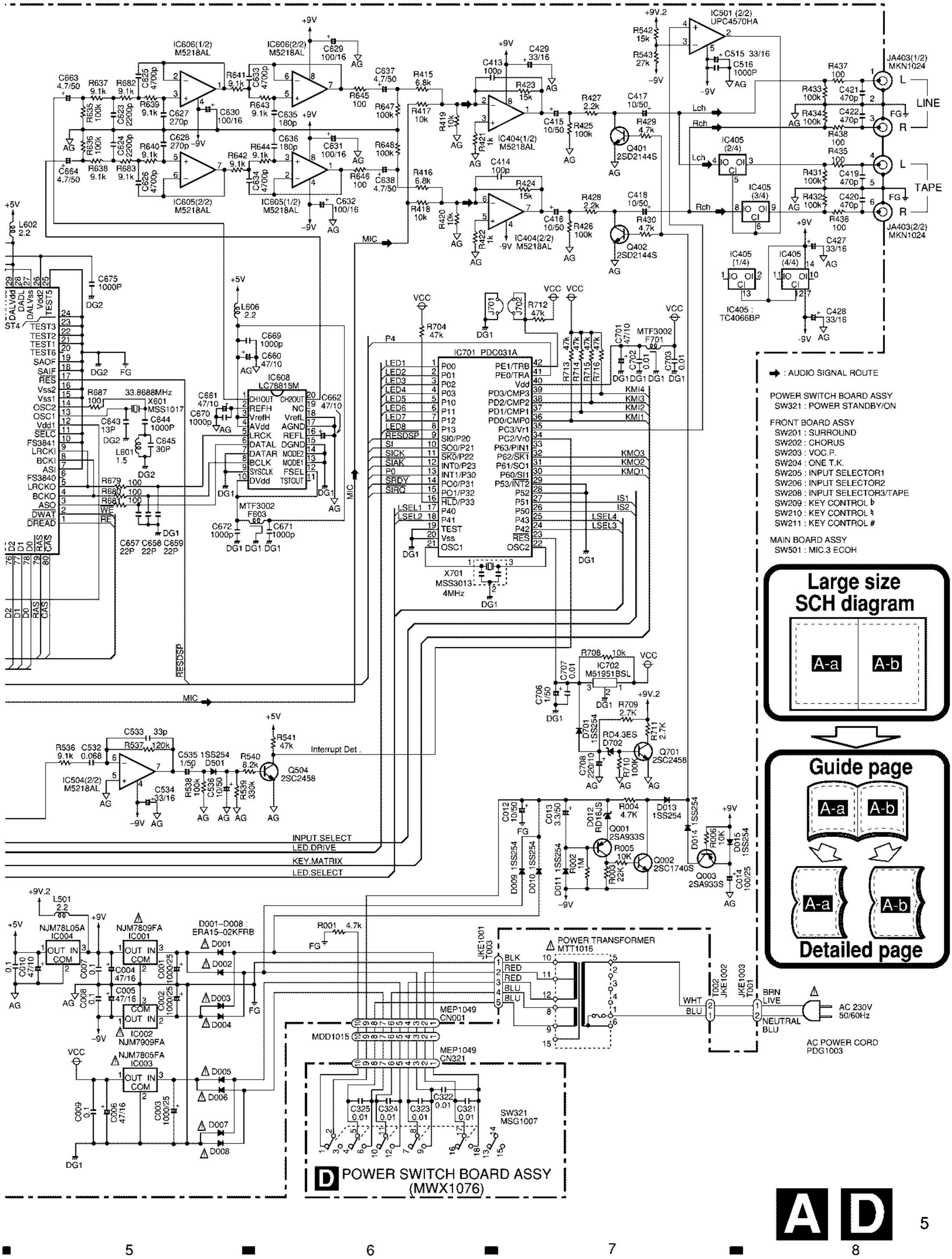
Note : When ordering service parts, be sure to refer to
"EXPLODED VIEWS and PARTS LIST" or "PCB PARTS LIST".

A-a

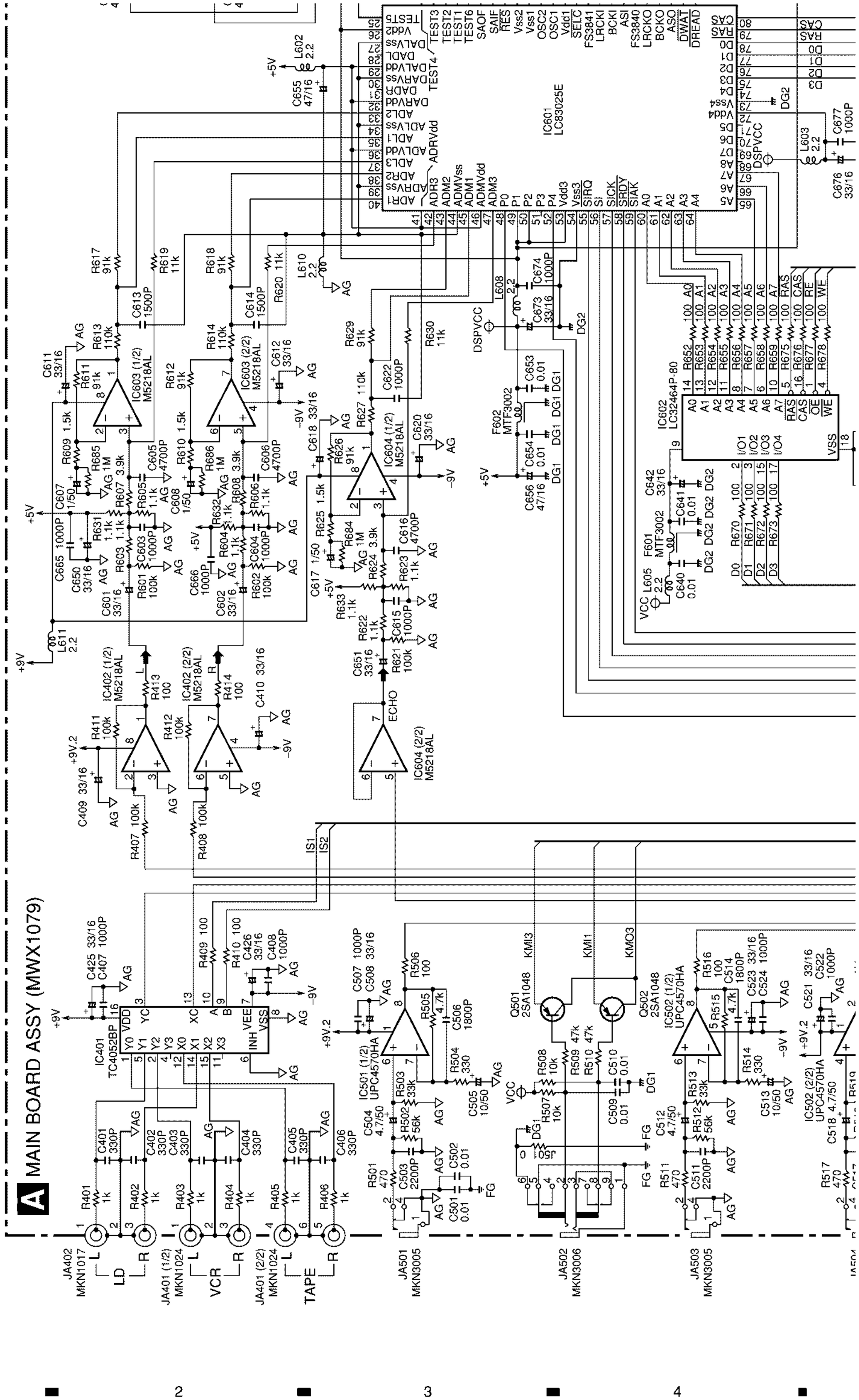


A B C

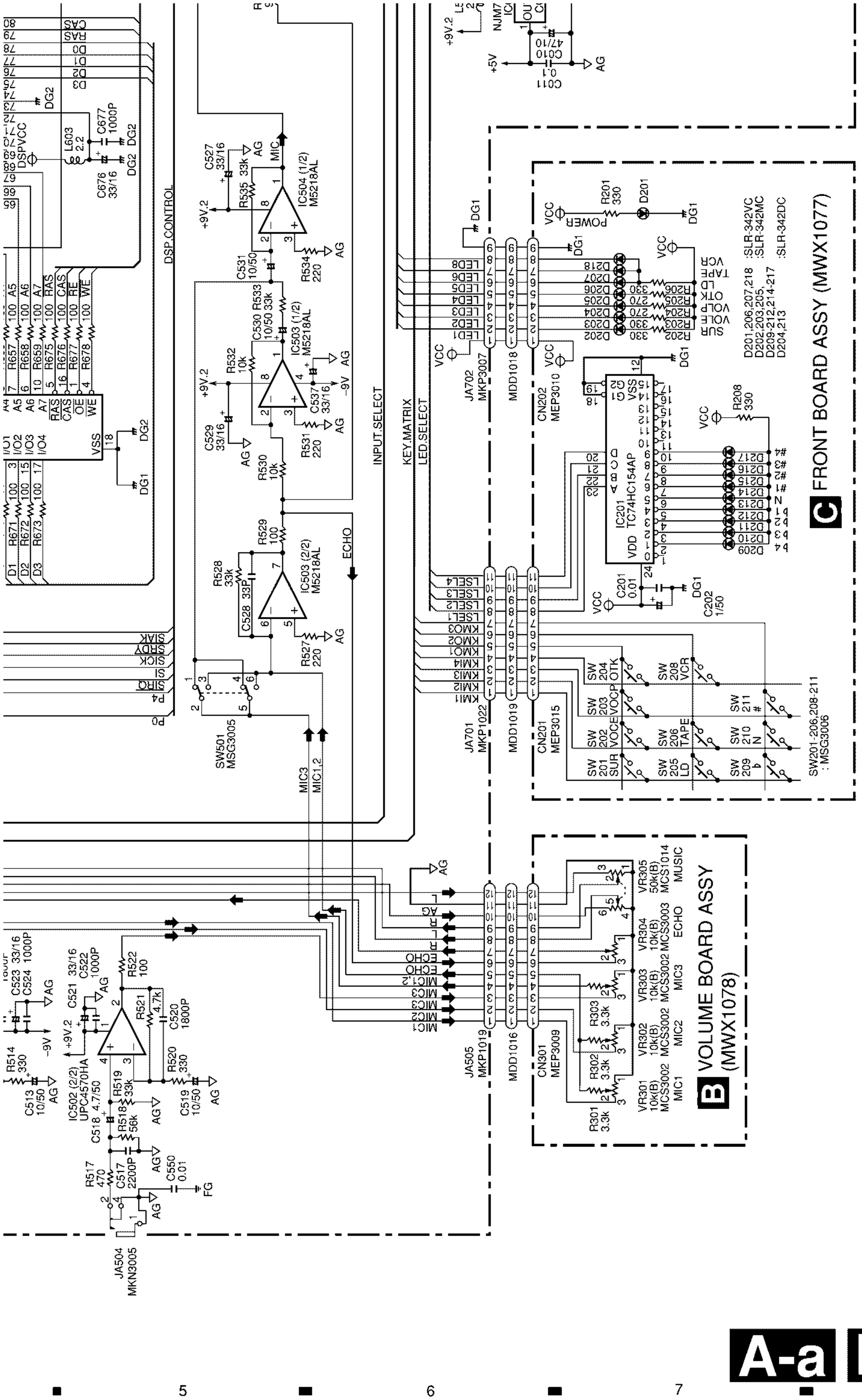
A-b


IC606(1/2) M5218AL
IC606(2/2) M5218AL
IC605(2/2) M5218AL
IC605(1/2) M5218AL
IC404(1/2) M5218AL
IC404(2/2) M5218AL
IC501 (2/2) UPC4570HA
IC608 LC78815M
IC701 PDC031A
IC702 M51951BSL
IC504(2/2) M5218AL
IC405 (1/4)
IC405 (2/4)
IC405 (3/4)
IC405 (4/4)
IC405 : TC4066BP
Q401 2SD2144S
Q402 2SD2144S
Q701 2SC2458
Q504 2SC2458
Q001 2SA933S
Q002 2SC1740S
Q003 2SA933S
JA403(1/2) MKN1024
JA403(2/2) MKN1024
LINE
TAPE
MIC
Lch
Rch
INPUT.SELECT
LED.DRIVE
KEY.MATRIX
LED.SELECT
RESDSP
Interrupt Det .
: AUDIO SIGNAL ROUTE
POWER SWITCH BOARD ASSY
SW321 : POWER STANDBY/ON
FRONT BOARD ASSY
SW201 : SURROUND
SW202 : CHORUS
SW203 : VOC.P.
SW204 : ONE T.K.
SW205 : INPUT SELECTOR1
SW206 : INPUT SELECTOR2
SW208 : INPUT SELECTOR3/TAPE
SW209 : KEY CONTROL ♭
SW210 : KEY CONTROL ♮
SW211 : KEY CONTROL #
MAIN BOARD ASSY
SW501 : MIC.3 ECOH
Large size SCH diagram
A-a
A-b
Guide page
A-a
A-b
A-a
A-b
Detailed page
POWER TRANSFORMER MTT1016
AC 230V 50/60Hz
AC POWER CORD PDG1003
D POWER SWITCH BOARD ASSY (MWX1076)
A D

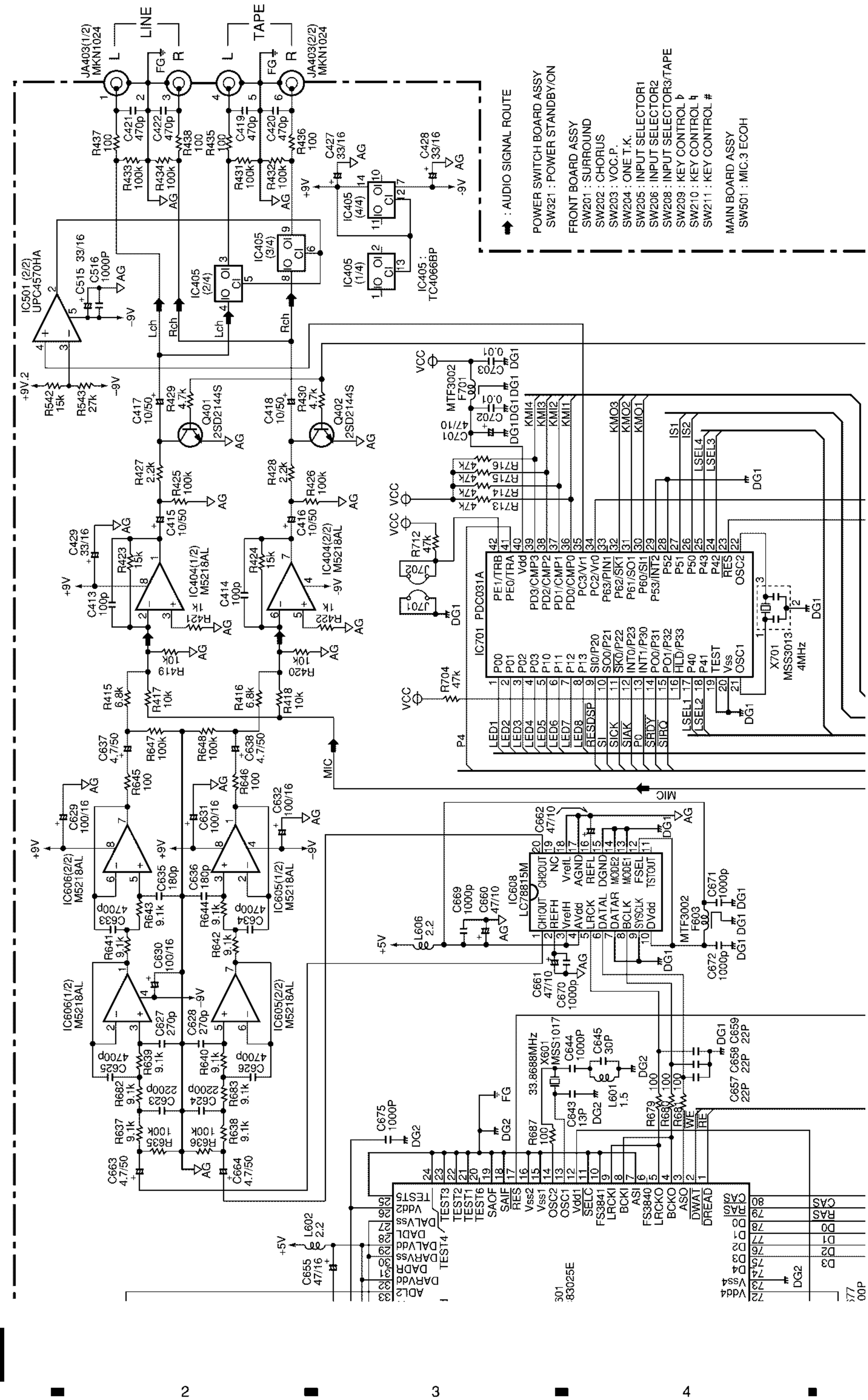
A-b
A-a


A MAIN BOARD ASSY (MWX1079)
IC601 LC83025E
IC602 LC32464P-80
IC603 (1/2) M5218AL
IC603 (2/2) M5218AL
IC604 (1/2) M5218AL
IC604 (2/2) M5218AL
IC401 TC4052BP
IC402 (1/2) M5218AL
IC402 (2/2) M5218AL
IC501 (1/2) UPC4570HA
IC501 (2/2) UPC4570HA
IC502 (1/2) UPC4570HA
IC502 (2/2) UPC4570HA
Q501 2SA1048
Q502 2SA1048
F601 MTF3002
F602 MTF3002
JA402 MKN1017
JA401 (1/2) MKN1024
JA401 (2/2) MKN1024
JA501 MKN3005
JA502 MKN3006
JA503 MKN3005
LD
VCR
TAPE
+5V
+9V
+9V.2
-9V
AG
DSPVCC
VCC
FG
DG1
DG2
ECHO
IS1
IS2
KMI1
KMI3
KMO3

A-a


DSP.CONTROL
INPUT.SELECT
KEY.MATRIX
LED.SELECT
C FRONT BOARD ASSY (MWX1077)
B VOLUME BOARD ASSY (MWX1078)
JA702 MKP3007
MDD1018
CN202 MEP3010
IC201 TC74HC154AP
JA701 MKP1022
MDD1019
CN201 MEP3015
JA505 MKP1019
MDD1016
CN301 MEP3009
JA504 MKN3005
SW501 MSG3005
IC504 (1/2) M5218AL
IC503 (1/2) M5218AL
IC503 (2/2) M5218AL
IC502 (2/2) UPC4570HA
D201,206,207,218 :SLR-342VC
D202,203,205, :SLR-342MC
D209-212,214-217
D204,213 :SLR-342DC
SW201-206,208-211 : MSG3006
DSPVCC
+9V.2
-9V
+5V
VCC
AG
FG
DG1
DG2

A-b
A-a



: AUDIO SIGNAL ROUTE

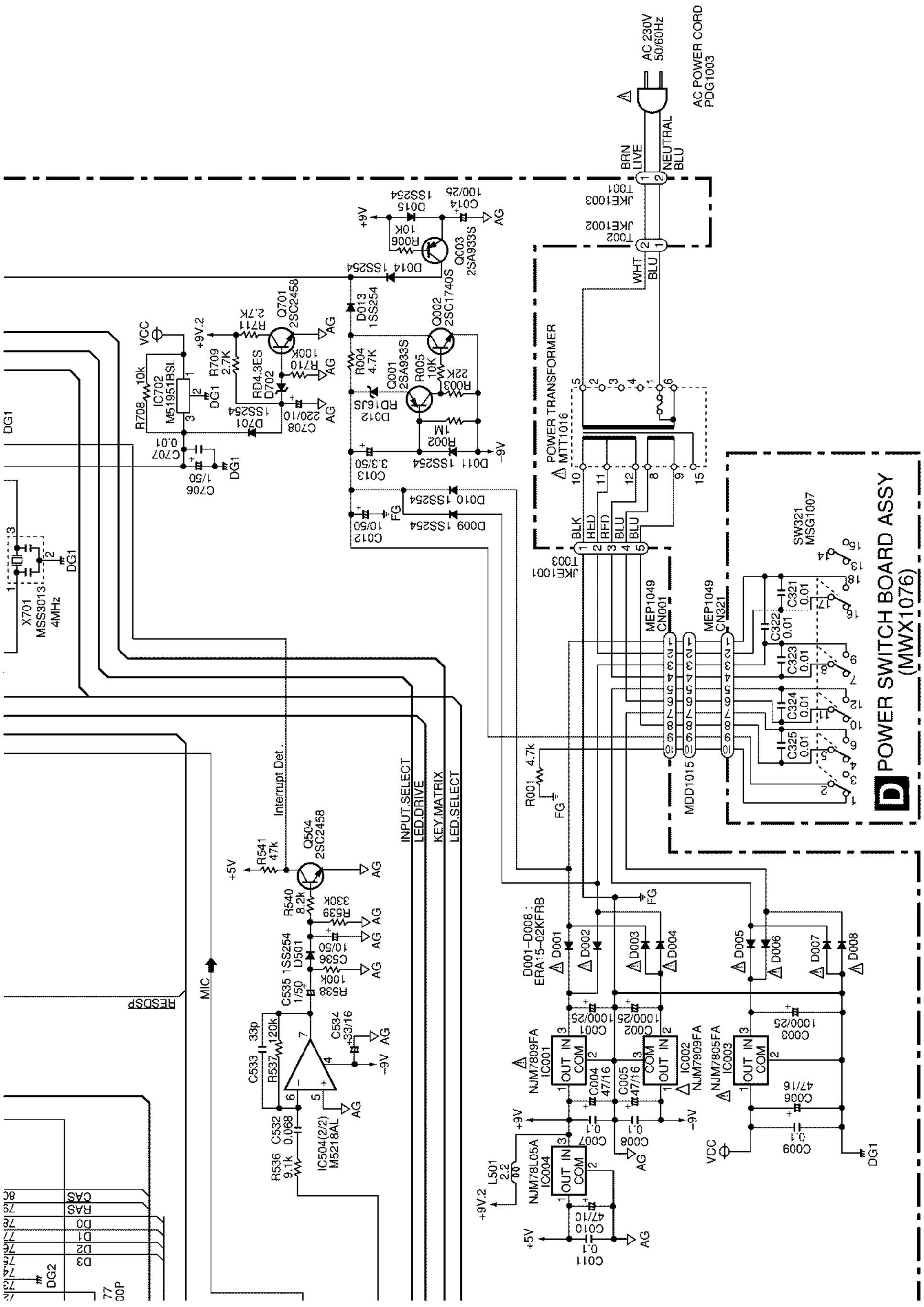
POWER SWITCH BOARD ASSY
SW321 : POWER STANDBY/ON

FRONT BOARD ASSY
SW201 : SURROUND
SW202 : CHORUS
SW203 : VOC.P.
SW204 : ONE T.K.
SW205 : INPUT SELECTOR1
SW206 : INPUT SELECTOR2
SW208 : INPUT SELECTOR3/TAPE
SW209 : KEY CONTROL ♭
SW210 : KEY CONTROL ♮
SW211 : KEY CONTROL #

MAIN BOARD ASSY
SW501 : MIC.3 ECOH

A-b

A-b
A-a


AC 230V 50/60Hz
AC POWER CORD PDG1003
BRN LIVE
NEUTRAL BLU
JKE1003 T001
JKE1002 T002
WHT
BLU
POWER TRANSFORMER MTT1016
BLK
RED
RED
BLU
BLU
JKE1001 T003
MEP1049 CN001
MEP1049 CN321
MD1015
SW321 MSG1007
POWER SWITCH BOARD ASSY (MWX1076)
D001–D008 : ERA15–02KFRB
NJM7809FA IC001
NJM7909FA IC002
NJM7805FA IC003
NJM78L05A IC004
IC504(2/2) M5218AL
IC702 M51951BSL
X701 MSS3013 4MHz
Q701 2SC2458
Q504 2SC2458
Q002 2SC1740S
Q001 2SA933S
Q003 2SA933S
D014 1SS254
D013 1SS254
D012 RD16JS
D011 1SS254
D010 1SS254
D009 1SS254
D015 1SS254
D701 1SS254
D702 RD4.3ES
D501 1SS254
+9V
-9V
+9V.2
+5V
VCC
AG
FG
DG1
DG2
INPUT.SELECT
LED.DRIVE
KEY.MATRIX
LED.SELECT
Interrupt Det.
MIC
RESDSP
CAS
RAS
D0
D1
D2
D3

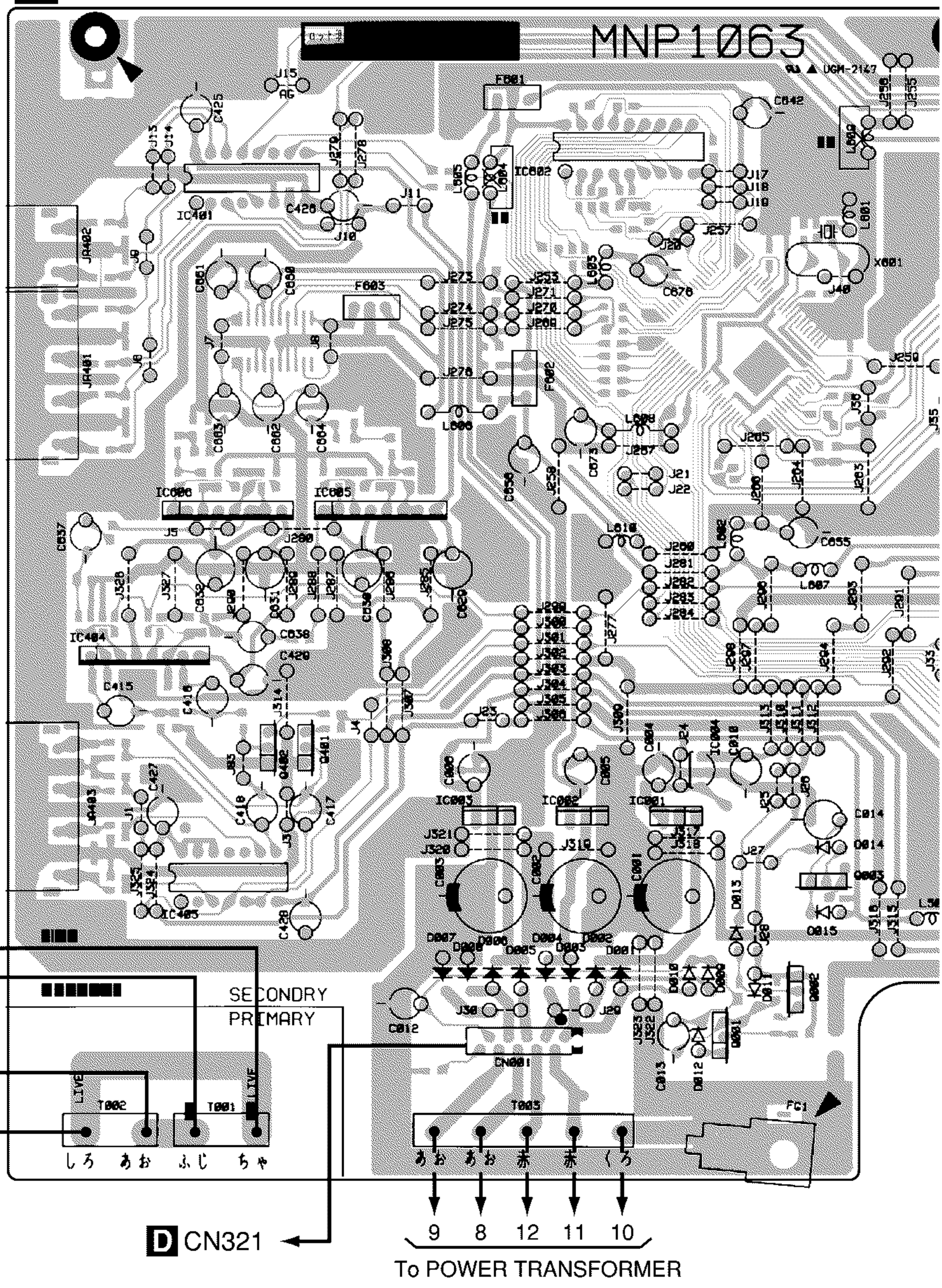
A-b D

4. PCB CONNECTION DIAGRAM

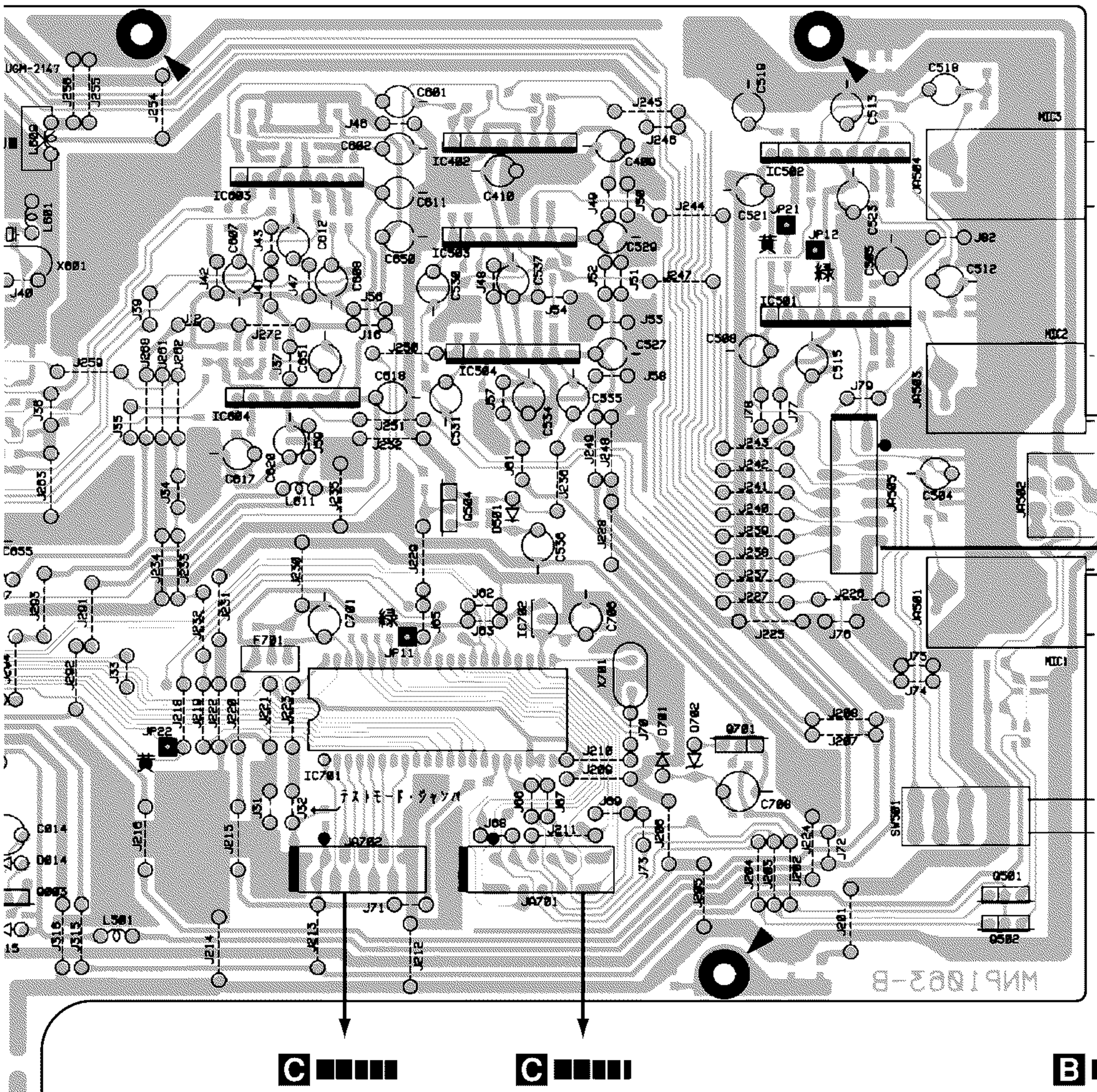
4.1 MAIN BOARD ASSY

IC401
IC404 IC606 IC605 IC003 IC602 IC002 IC001 IC004
IC405 Q402 Q401 Q001 Q002 Q003

A MAIN BOARD ASSY

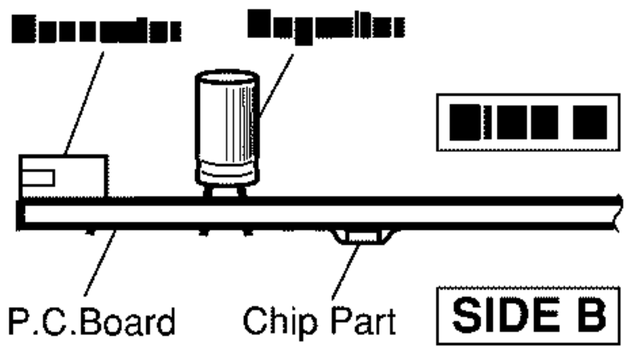


IC603 IC402 IC503 IC502
IC604 Q504 IC504 IC501
Q003 IC701 IC702 Q701



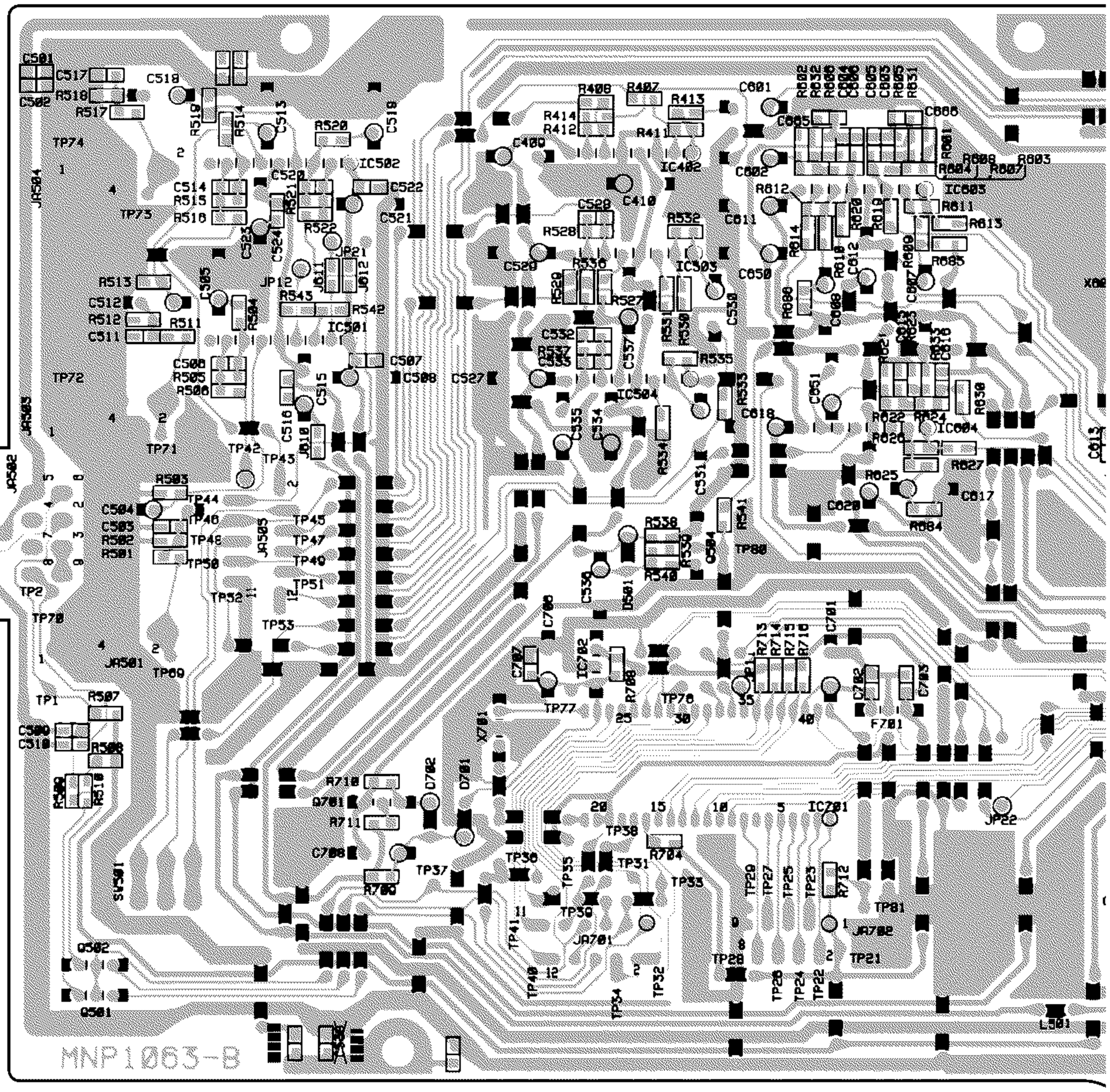
[illegible]

1. [illegible] in PCB diagrams [illegible] in the schematic diagrams.
2. The parts mounted on this PCB include all necessary parts for several destinations.
   For further information for respective destinations, be sure to check with the schematic diagram.
3. View point of PCB diagrams.

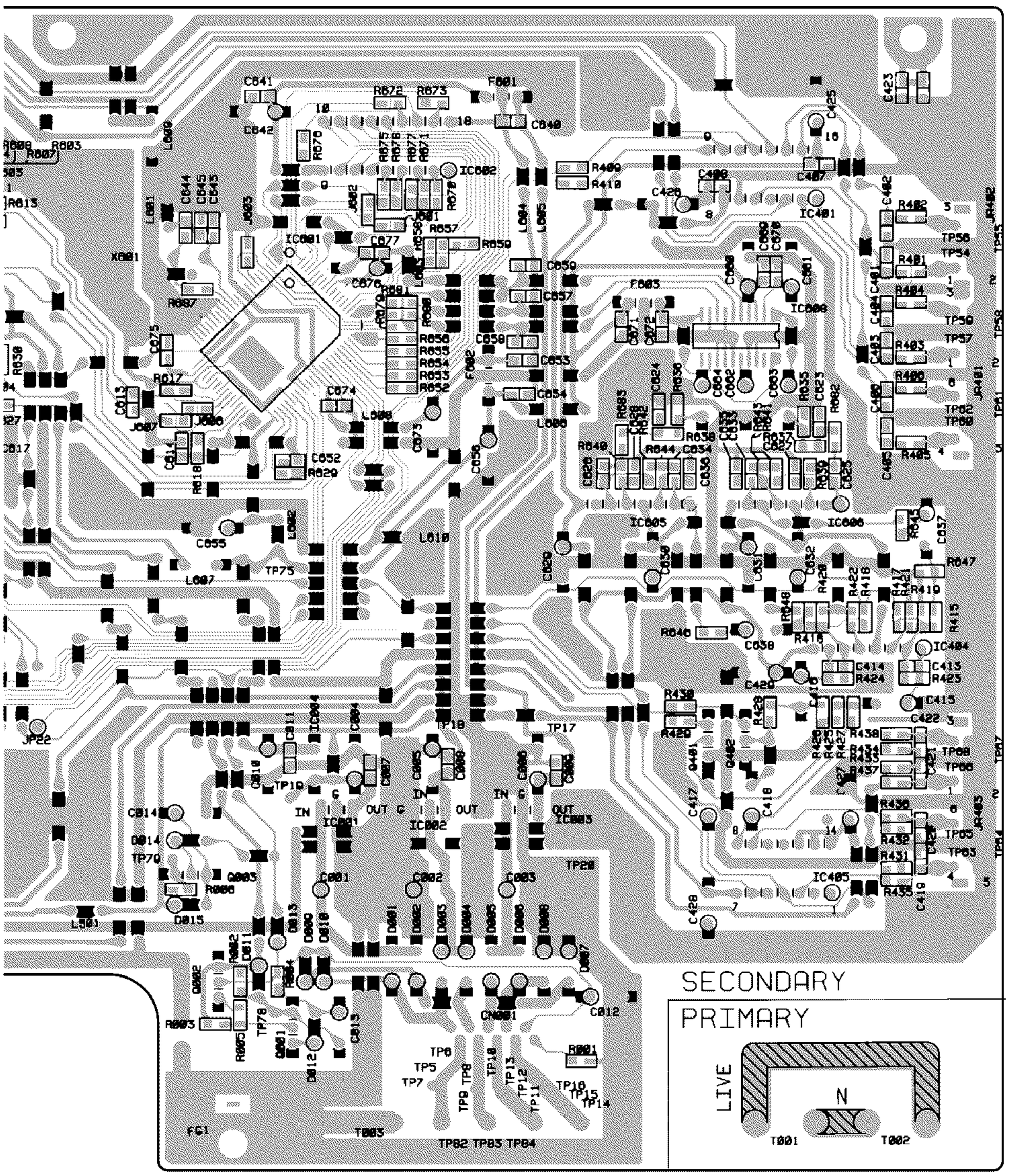


A

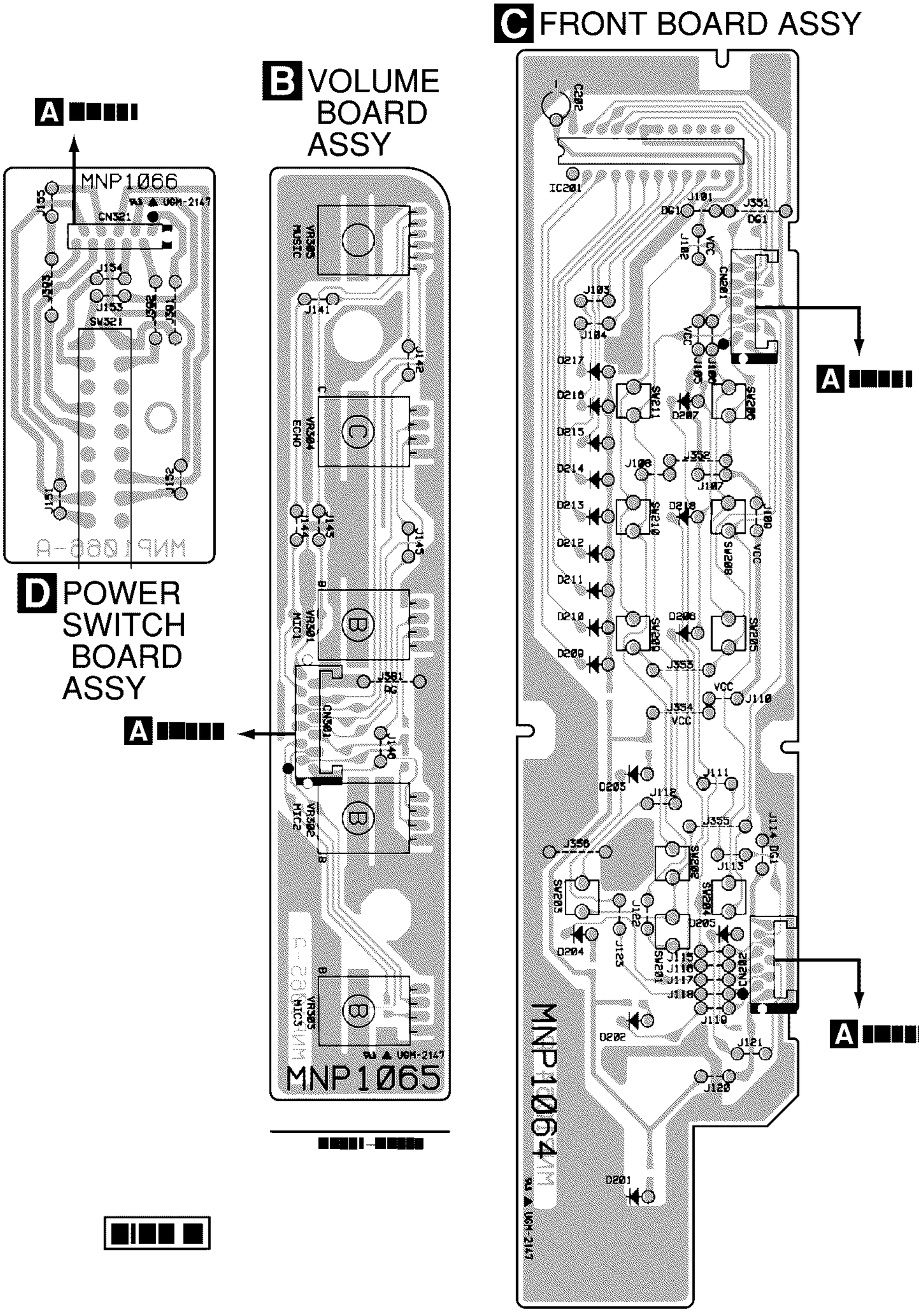
A MAIN BOARD ASSY



IC601 IC608

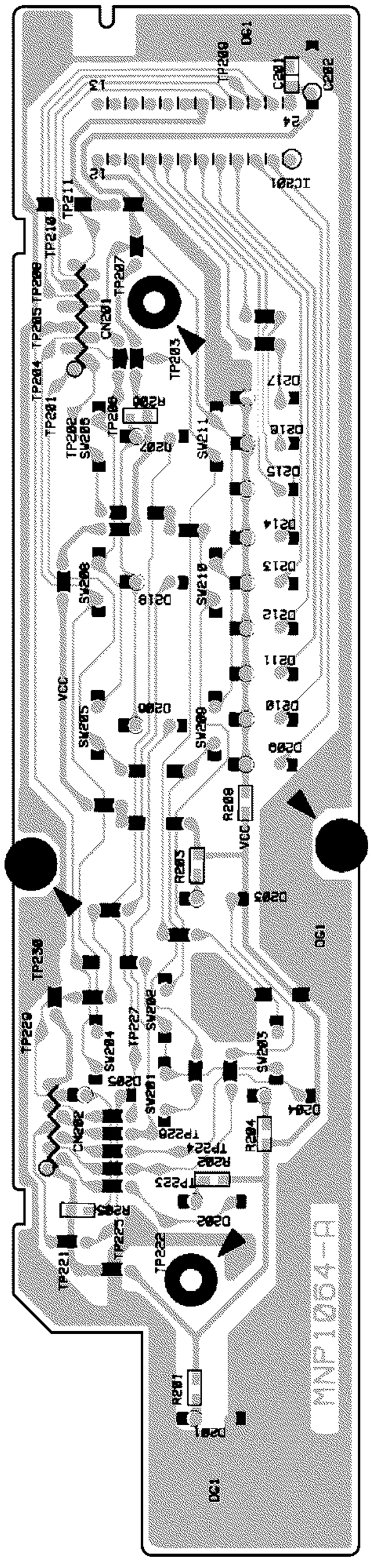


4.2 POWER SWITCH BOARD, FRONT BOARD AND VOLUME BOARD ASSEMBLIES

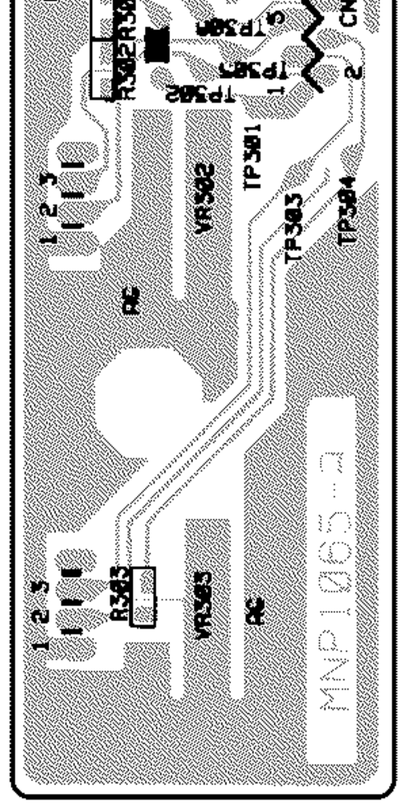


14

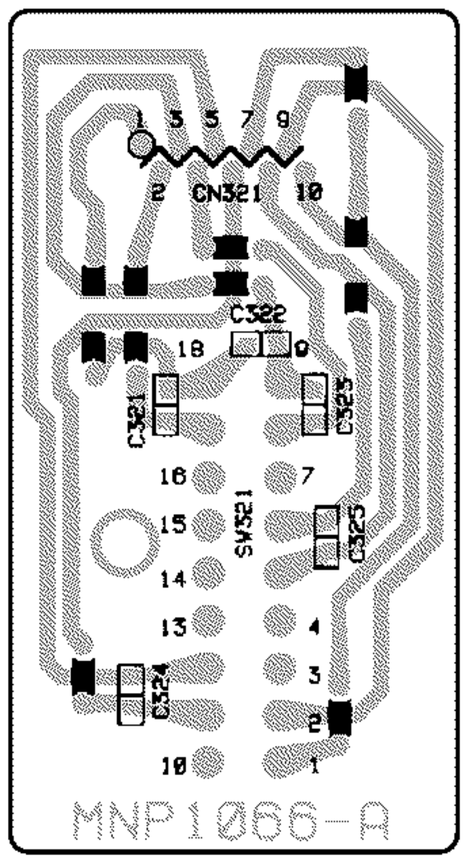
C FRONT BOARD ASSY



B VOLUME BOARD ASSY

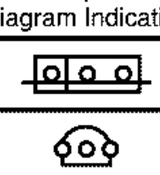
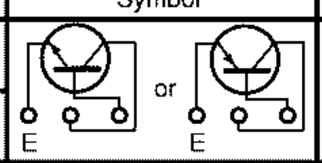
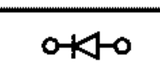
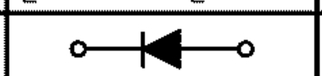
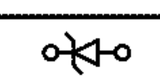
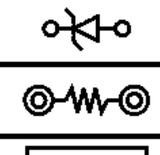
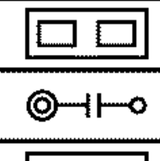
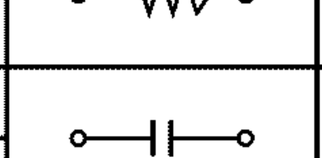
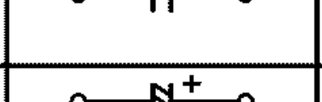
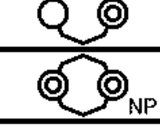
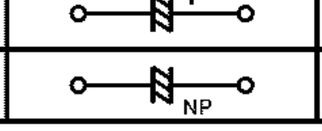


D POWER SWITCH BOARD ASSY



Note :

- A comparison between the main parts of PCB and schematic diagrams is shown below.

P.C.B pattern Diagram Indication	Corresponding Part Symbol	Part Name
		Transistor
		
		Diode
		Zenner diode
		Resistor
		Capacitor (Non polarized)
		Capacitor (Polarized)
 NP	 NP	Capacitor (Non polarized)

4. PCB PARTS LIST

NOTES: ●*Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
●*The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
●*When ordering resistors, first convert resistance values into code form as shown in the following examples.*
Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560 Ω	→	*56 × 10¹*	→	*561* ..... *RD1/4PU [5][6][1] J*
47k Ω	→	*47 × 10³*	→	*473* ..... *RD1/4PU [4][7][3] J*
0.5 Ω	→	*R50*		..... *RN2H [R][5][0] K*
1 Ω	→	*1R0*		..... *RS1P [1][R][0] K*

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω	→	*562 × 10¹*	→	*5621* ..... *RN1/4PC [5][6][2][1] F*

Mark	No.	Description	Part No.
LIST OF ASSEMBLIES			
NSP		MOTHER BOARD ASSY	MWM1038
NSP		├ POWER SWITCH BOARD ASSY	MWX1076
		├ FRONT BOARD ASSY	MWX1077
NSP		├ VOLUME BOARD ASSY	MWX1078
		└ MAIN BOARD ASSY	MWX1079
A MAIN BOARD ASSY			
SEMICONDUCTORS			
⚠		IC001	NJM7809FA
⚠		IC002	NJM7909FA
⚠		IC003	NJM7805FA
		IC004	NJM78L05A
		IC401	TC4052BP
		IC402,IC404,IC503,IC504	M5218AL
		IC603-IC606	M5218AL
		IC405	TC4066BP
		IC501,IC502	UPC4570HA
		IC601	LC83025E
		IC602	LC32464P-80
		IC608	LC78815M
		IC701	PDC031A
		IC702	M51951BSL
		Q001,Q003	2SA933S
		Q002	2SC1740S
		Q401,Q402	2SD2144S
		Q501,Q502	2SA1048
		Q504,Q701	2SC2458
⚠		D001-D008	ERA15-02KFRB
		D009-D011,D013-D015,D501,D701	1SS254
		D012	RD16JS
		D702	RD4R3ES
COILS AND FILTERS			
		L601	LAU1R5J
		L501,L602,L603,L605,L606,L608	LAU2R2J
		L610,L611	LAU2R2J
		F601-F603,F701	MTF3002
SWITCH			
		SW501	MSG3005
CAPACITORS			
		C001-C003	CEA102M25L2
		C004-C006,C655,C656	CEA470M16L2
		C007-C009,C011	CKSQYF104Z50
		C010,C660-C662,C701	CEA470M10L2
		C012,C415-C418,C505,C513	CEA100M50L2
		C519,C530,C531,C536	CEA100M50L2
		C013	CEA3R3M50L2
		C014	CEA101M25L2
		C401-C406	CCSQCH331J50
		C407,C408,C507,C516,C522,C524	CCSQSL102J50
		C603,C604,C615,C644,C652,C665	CCSQSL102J50
		C666,C669-C672,C674,C675,C677	CCSQSL102J50
		C409,C410,C425-C429,C508,C515	CEA330M16L2
		C521,C523,C527,C529,C534,C537	CEA330M16L2
		C601,C602,C611,C612,C618,C620	CEA330M16L2
		C642,C650,C651,C673,C676	CEA330M16L2
		C413,C414	CCSQCH101J50
		C419-C422	CCSQCH471J50
		C501,C502,C509,C510,C550,C640	CKSQYB103K50
		C641,C653,C654,C702,C703,C707	CKSQYB103K50
		C503,C511,C517,C623,C624	CKSQYB222K50
		C504,C512,C518,C637,C638	CEA4R7M50L2
		C663,C664	CEA4R7M50L2
		C506,C514,C520	CKSQYB182K50
		C528,C533	CCSQCH330J50
		C532	CKSQYB683K50
		C535,C607,C608,C617,C706	CEA1R0M50L2
		C605,C606,C616,C625,C626	CKSQYB472K50
		C633,C634	CKSQYB472K50
		C613,C614	CCSQSL152J50
		C635,C636	CCSQCH181J50
		C629-C632	CEA101M16L2
		C627,C628	CCSQCH271J50
		C643	CCSQCH130J50
		C645	CCSQCH300J50
		C657-C659	CCSQCH220J50
		C708	CEA221M10L2
RESISTORS			
		J501,J601-J603,J606	RD1/10S0R0J
		J607,J610-J612	RD1/10S0R0J
		All Resistors	RS1/10S□□□J

Mark	No.	Description	Part No.
OTHERS			
NSP		PCB	MNP1063
	CN001	CABLE HOLDER	MEP1049
	JA401,JA403	JACK	MKN1024
	JA402	JACK	MKN1017
	JA501,JA503,JA504	MIC JACK	MKN3005
	JA502	JACK	MKN3006
	JA505	CONNECTOR	MKP1019
	JA701	CONNECTOR	MKP1022
	JA702	CONNECTOR	MKP3007
	X601	RESONATOR (33.8688MHz)	MSS1017
	X701	RESONATOR (4MHz)	MSS3013
		EARTH TERMINAL	JKF1009
	T001	TERMINAL	JKE1003
	T002	TERMINAL	JKE1002
	T003	TERMINAL	JKE1001
		CORD	MDB1023
		CORD	MDB1024

B VOLUME ASSY

RESISTORS		
VR301-VR303	(10kΩ-B)	MCS3002
VR304	(10kΩ-C)	MCS3003
VR305	(50kΩ-B)	MCS1014
R301-R303		RS1/10S332J
OTHERS		
	PARALLEL CORD	MDD1016
	PCB	MNP1065
CN301	CABLE HOLDER	MEP3009

C FRONT BOARD ASSY

SEMICONDUCTORS	
IC201	TC74HC154AP
D201,D206,D207,D218	SLR-342VC
D202,D203,D205,D209-D212	SLR-342MC
D214-D217	SLR-342MC
D204,D213	SLR-342DC
SWITCHES	
SW201-SW206,SW208-SW211	MSG3006
CAPACITORS	
C201	CKSQYB103K50
C202	CEJANP1R0M50
RESISTORS	
R204,R205	RS1/10S271J
R201-R203,R206,R208	RS1/10S331J
OTHERS	

NSP		PCB	MNP1064
		PARALLEL CORD	MDD1018
		PARALLEL CORD	MDD1019
	CN201	CABLE HOLDER	MEP3015
	CN202	CABLE HOLDER	MEP3010

Mark	No.	Description	Part No.

D POWER SWITCH BOARD ASSY

CAPACITORS			
	C321-C325		CKSQYB103K50
SWITCH			
	SW321		MSG1007
OTHERS			
		PCB	MNP1066
		PARALLEL CORD	MDD1015
	CN321	CABLE HOLDER	MEP1049

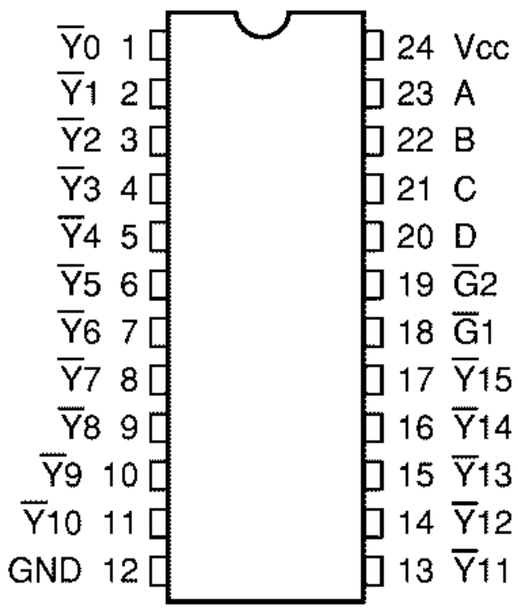
5. IC INFORMATION

• The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

■ TC74HC154AP (FRONT BOARD ASSY : IC201)

• Line Decoder

●Pin Assignment (Top View)

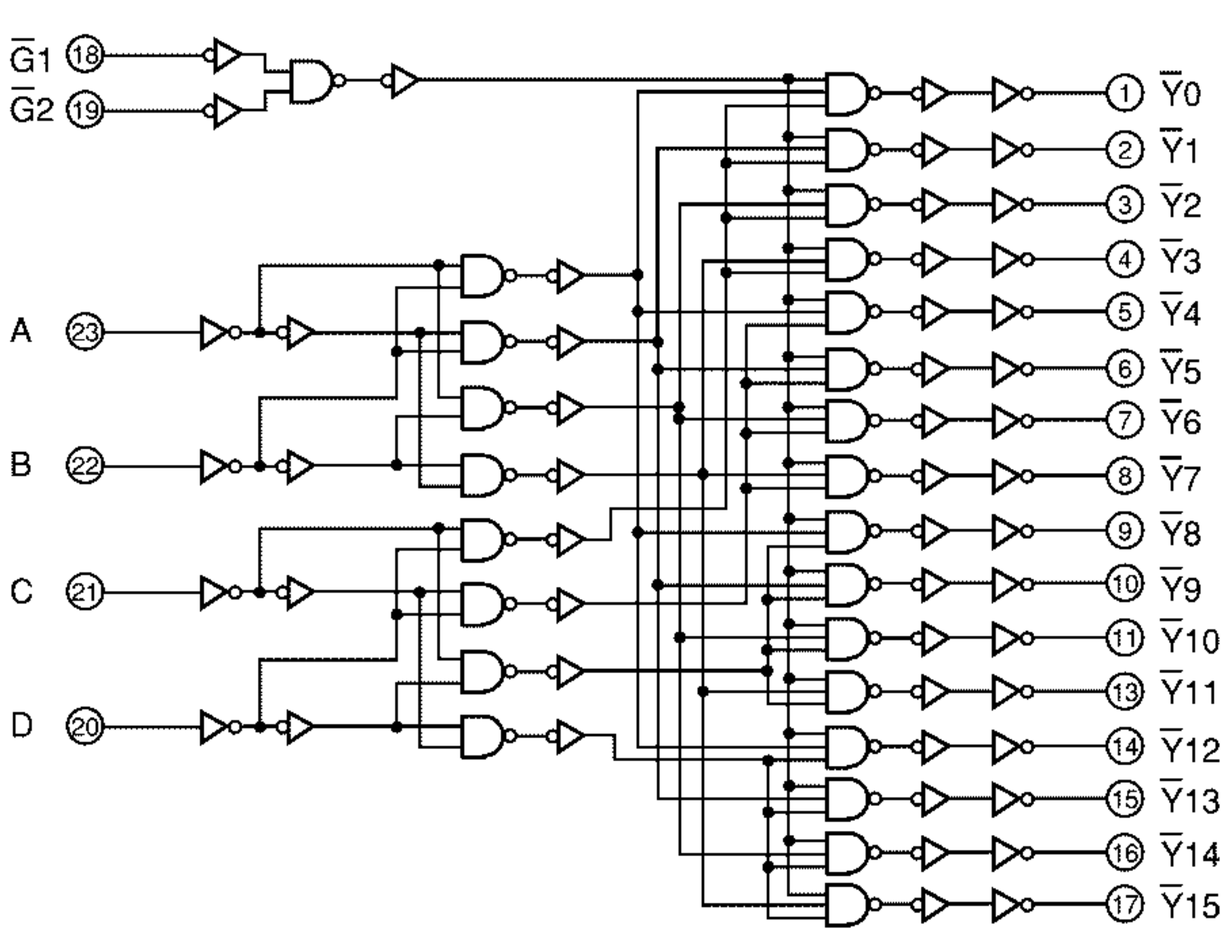


●Truth Table

Input						Selected Output (L)	Pin No.
Pin No.							
18	19	20	21	22	23		
$\overline{G}1$	$\overline{G}2$	D	C	B	A		
L	L	L	L	L	L	$\overline{Y}0$	1
L	L	L	L	L	H	$\overline{Y}1$	2
L	L	L	L	H	L	$\overline{Y}2$	3
L	L	L	L	H	H	$\overline{Y}3$	4
L	L	L	H	L	L	$\overline{Y}4$	5
L	L	L	H	L	H	$\overline{Y}5$	6
L	L	L	H	H	L	$\overline{Y}6$	7
L	L	L	H	H	H	$\overline{Y}7$	8
L	L	H	L	L	L	$\overline{Y}8$	9
L	L	H	L	L	H	$\overline{Y}9$	10
L	L	H	L	H	L	$\overline{Y}10$	11
L	L	H	L	H	H	$\overline{Y}11$	13
L	L	H	H	L	L	$\overline{Y}12$	14
L	L	H	H	L	H	$\overline{Y}13$	15
L	L	H	H	H	L	$\overline{Y}14$	16
L	L	H	H	H	H	$\overline{Y}15$	17
X	H	X	X	X	X	NONE	
H	X	X	X	X	X	NONE	

X : Don't care

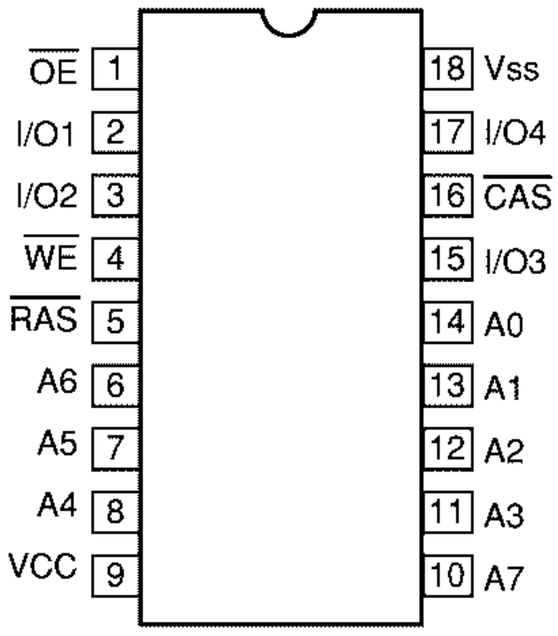
●Block Diagram



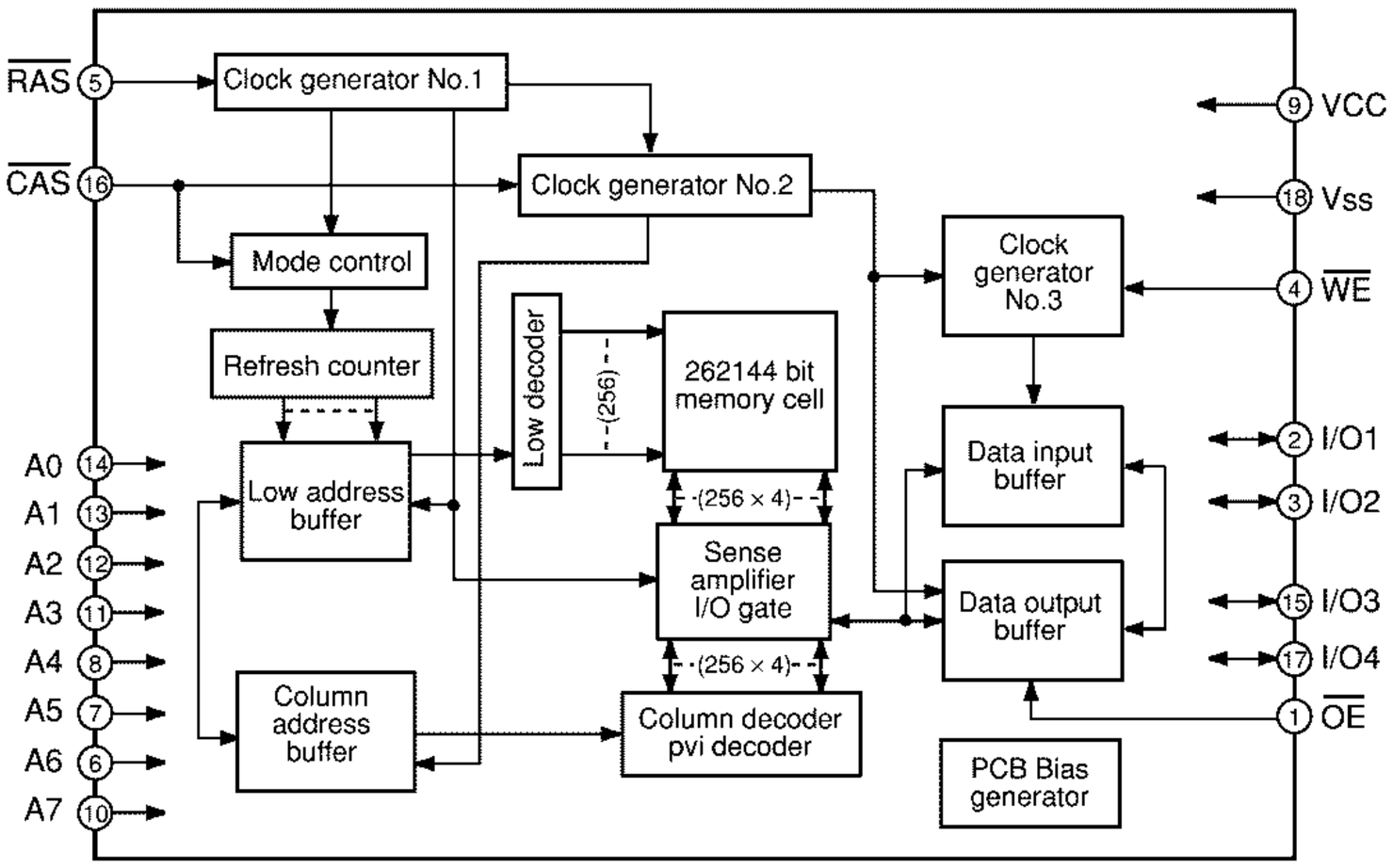
■ LC32464P-80 (MAIN BOARD ASSY : IC602)

• 256k (65536 word × 4 bits) DRAM

●Pin Assignment



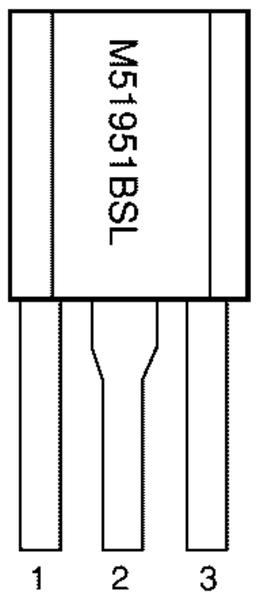
●Block Diagram



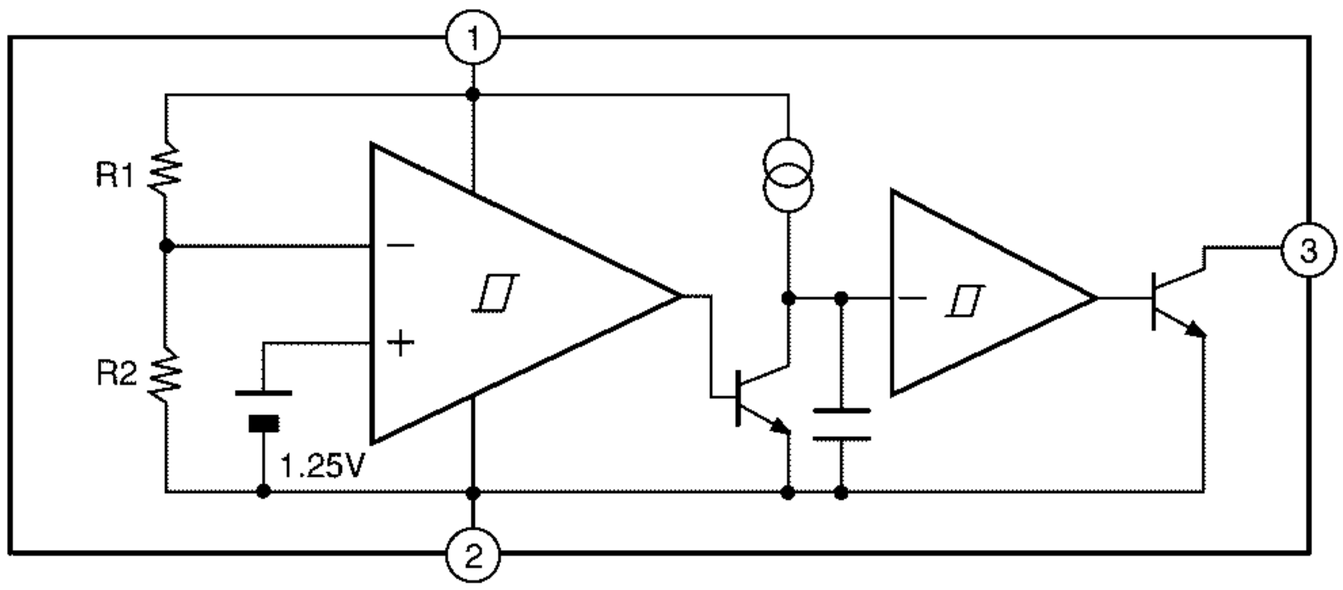
■ M51951BSL (MAIN BOARD ASSY : IC702)

• System Reset

●Pin Assignment



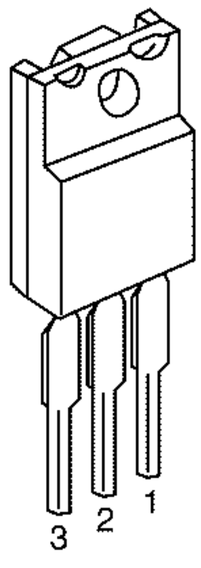
●Block Diagram



■ NJM7909FA (MAIN BOARD ASSY : IC002)

• Voltage Regulator

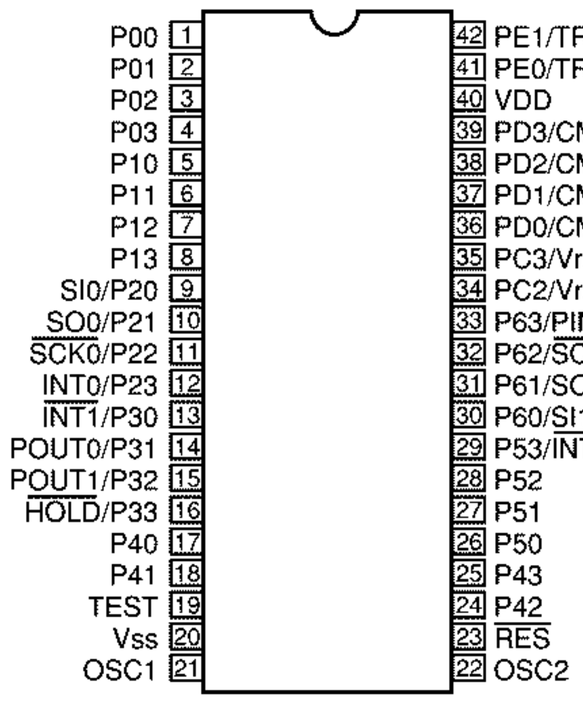
●Pin Assignment



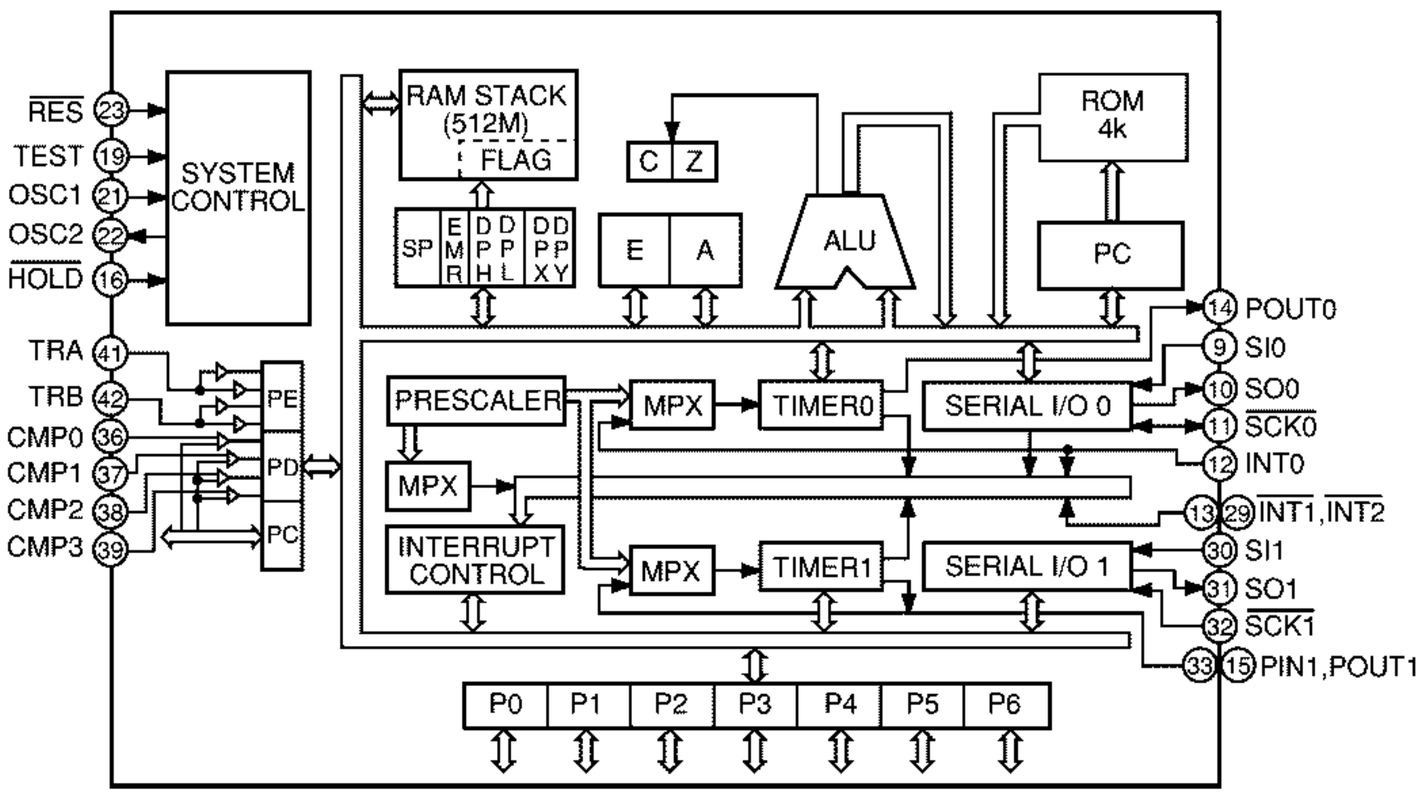
■ PDC031A (MAIN BOARD ASSY : IC701)

• 4 bits 1 chip Micro-computer

●Pin Assignment (Top View)



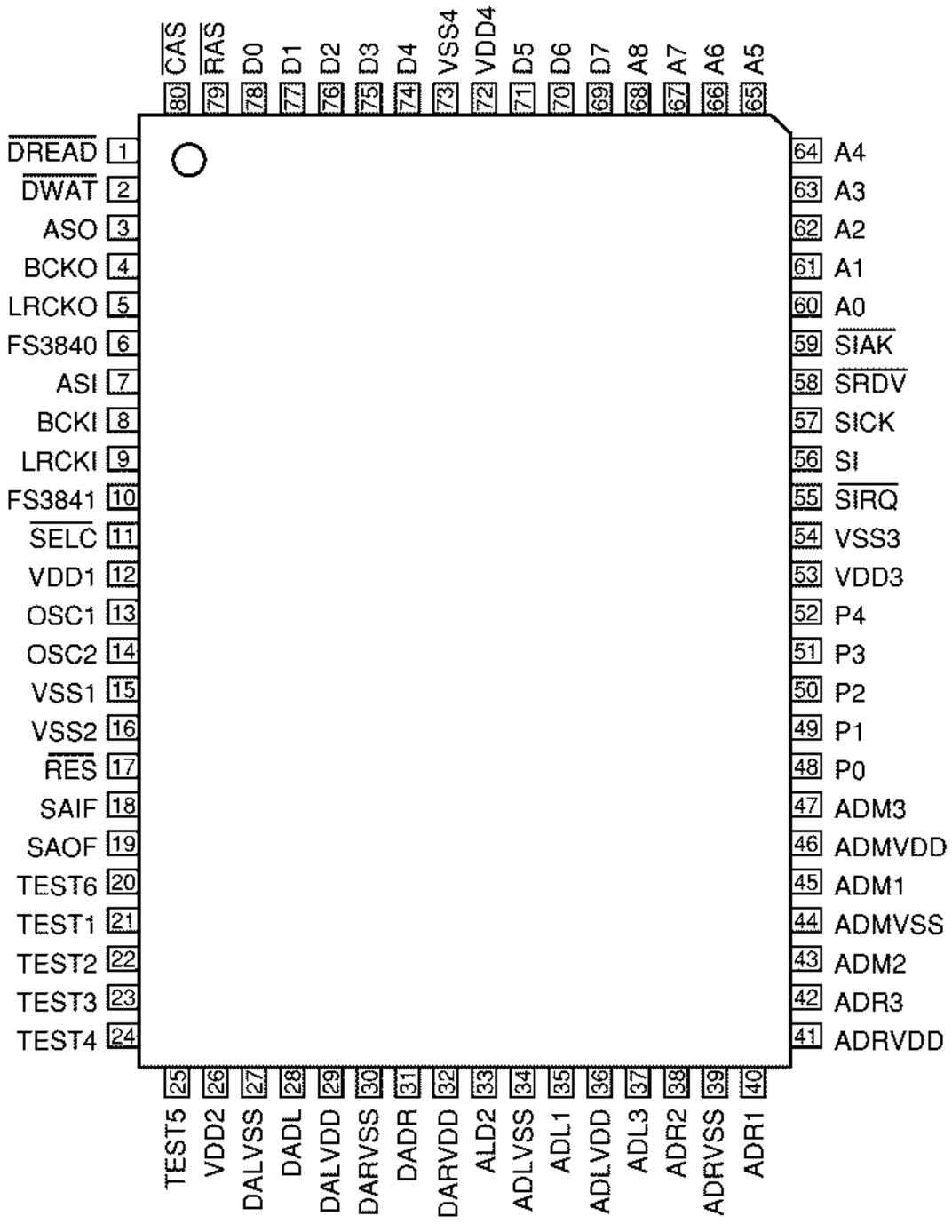
●Block Diagram



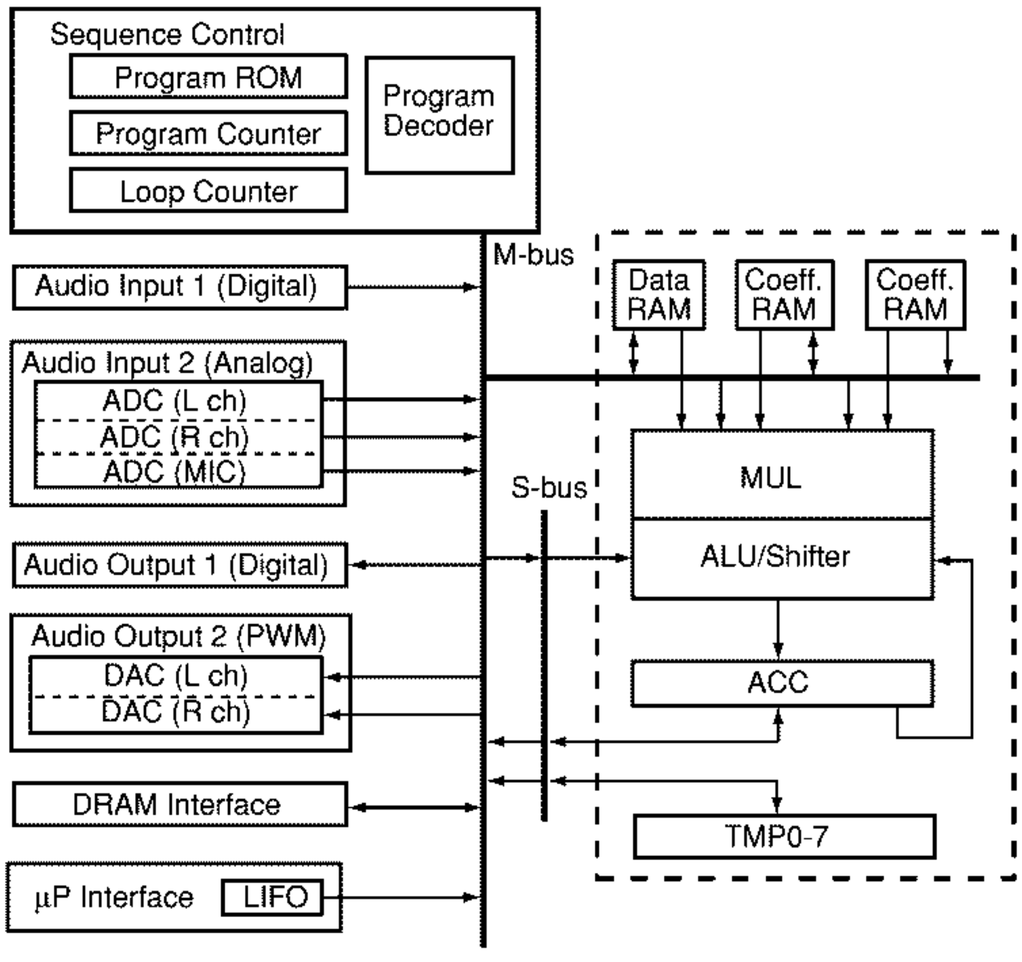
■ LC83025E (MAIN BOARD ASSY : IC601)

• Karaoke Digital Signal Processor

●Pin Assignment (Top View)

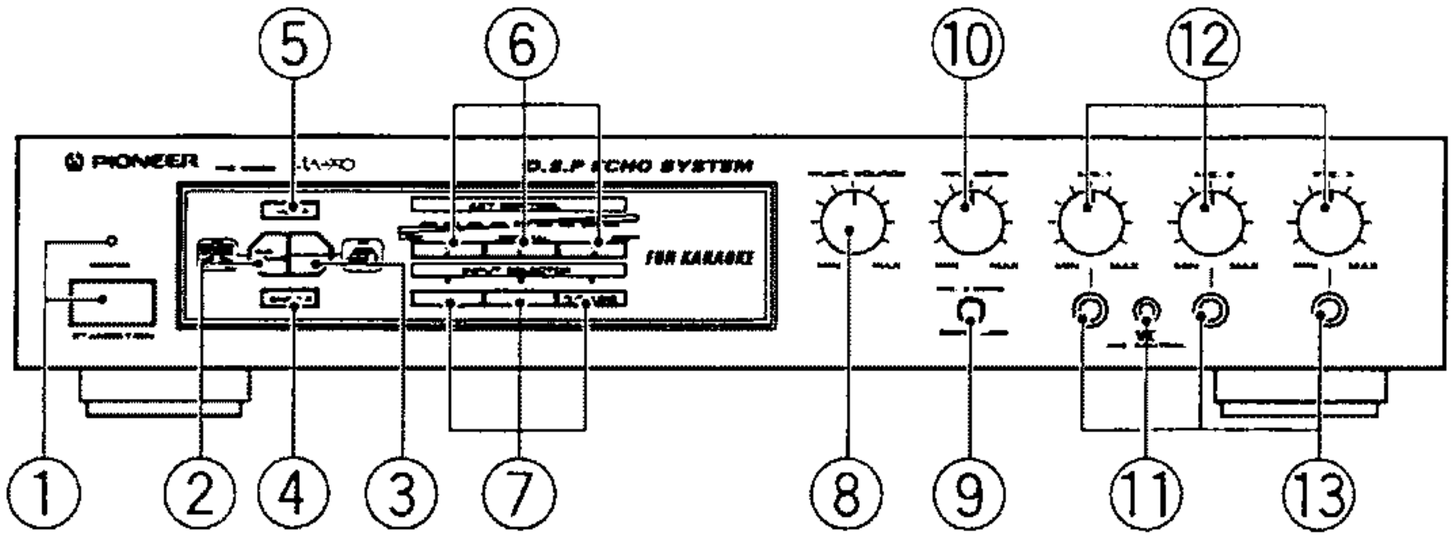


●Block Diagram



6. PANEL FACILITIES AND SPECIFICATIONS

■ PANEL FACILITIES



① POWER switch/indicator
Press to turn on the power and indicator. Press again to turn off the power and indicator.

② SURROUND (surround button)
Enhances the music mood.

③ CHORUS (chorus button)
Enhances the vocal mood.

④ ONE T. K.
(ONE–TOUCH KARAOKE button)
Reduces the vocal sound of non–karaoke LD and tape. When set to ON, the indicator is lit.

⑤ VOC. P. (VOCAL PARTNER button)
Reduces the playback vocal and increases your voice as the main vocal during singing with a microphone. When set to ON, the indicator is lit.

⑥ KEY CONTROL (key control button)
Enables changing the accompaniment pitch.

⑦ INPUT SELECTOR (input select button)
1, 2, and 3/TAPE audio are changed over.

⑧ MUSIC SOURCE VOLUME control
Controls sound volume of the music source.

⑨ MIC. 3 ECHO
(microphone 3 echo changeover button)
Sets echo of only microphone 3 to ON/OFF.

⑩ MIC. ECHO (digital echo control)
Adjusts the echo effect in VOCAL mode.

⑪ MIC. CONTROL
(microphone control input)
Key control can be operated from the microphone by connecting the control mini plug of PIONEER remote control karaoke microphone DM–C930, DM–C820 and DM–C530.

⑫ MIC. VOLUME control
Controls sound volume of the microphone connected to the microphone terminal.

⑬ MIC. inputs
Connect the microphone plug.

■ [redacted]

Input ..... 3 microphone systems
3 audio systems

- Microphone (sensitivity/impedance) ..... 1 mV/20 kΩ
- Audio (sensitivity/impedance) ..... 150 mV/100 kΩ

Output ..... 2 audio systems
- Audio (level/impedance) ..... 150 mV/5 kΩ

Power voltage
..... AC230V, 50/60 Hz
Power consumption ..... 14 W
Weight ..... 3.1 kg
Dimensions ..... 420 (W) x 85 (H) x 316 (D) mm
(excluding protruding portion)

Accessories
Operating instructions 1
Audio cord 1
Warranty card 1